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EXAMINER	
CAMPOS, YAIMA	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/697,183	SHACHOR, GAL	
	Examiner	Art Unit	
	Yaima Campos	2185	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15,17,19,21-23,25 and 27-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,17,19,21-23,25 and 27-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The examiner acknowledges the applicant's submission of the amendment dated May 1, 2006. At this point claims (1, 9-14, 17, 21, 25 and 27) have been amended, claims (16, 18, 20, 24 and 26) have been cancelled and claims (28-32) have been added. Thus, claims (1-15, 17, 19, 21-23, 25 and 27-32) are pending in the instant application.

I. REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

2. **Claims 1-7, 11-15, 17, 19, 21-23, 25 and 27-32** are rejected under 35 U.S.C. § 103 as being unpatentable over Cooke, Jr. et al. (US 6,574,629) in view of Bocionek (US 2002/0091765).

3. As per **claims 1 and 25**, Cooke discloses "a method of managing a storage," as it is taught that **["The invention described herein can be used to manage folder of studies;" wherein "archive station 4 comprises a workstation 40 having a memory device 41" and that memory device comprises "long-term DICOM storage for studies provided from**

imaging modalities" (Figure 1 and Column 8, lines 39-47)], "a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps of managing a storage," and "a computer program product comprising a computer useable medium having computer readable program code embodied therein of managing a storage" **[With respect to these limitations, Cooke discloses that "workstation 10 includes memory 21, which comprises a computer readable medium such as one or more computer hard disks" and that "PACS software modules comprise computer-executable code that defines process steps for effecting the various PACS functions of each component/extension" (Figures 1,3 and Column 7, lines 42-45 and 54-58)** "wherein the storage includes a faster access part and a slower access part" **[With respect to this limitation, Cooke discloses that "workstation 10 includes memory 21, which comprises a computer-readable medium such as one or more computer hard disks" as disclosing a slower storage part in memory, and also explains that "a portion of memory 21 may comprise a cache 23 for the workstation" as disclosing a faster storage part in memory (Figure 3 and Column 7, lines 42-46). Cooke also teaches having "an archive station which has access to a long-term memory for storing image data, and a reviewing station which has a display for displaying images based on received image data" (Column 2, lines 21-25)]** "comprising: examining a worklist which schedules at least one modality to perform at least one task;" **[With respect to this limitation, Cooke discloses that "the worklist comprises the study, or group of studies, that the user selects from the main study list" (Column 11, lines 53-54), that "the present invention includes the ability to route relevant prior studies to a reviewing station in contemplation of a scheduled event such as patient examination or the like" (Column 18,**

lines 55-57) and that a "worklist select button selects studies that match default worklist criteria" from a "main study list" (Column 24, lines 42-48)] "and ensuring that in the faster access part there is available at least some data which based on at least one predetermined rule is deemed likely to be accessed in connection to said at least one task to be performed by said at least one modality scheduled by said worklist" **[With respect to this limitation, Cooke discloses that "predetermined PACS pre-fetching rules stored in memory on the network gateway take over to retrieve relevant prior studies from a memory (e.g., the archives) on the PACS" and that "once this is done, the prior studies are copied into the archive station's cache (or alternatively, the network gateway's cache) and routed to the appropriate stations automatically" (Column 19, lines 4-15) as ensuring fast memory contains data likely to be accessed in the near future. Cooke also teaches that "the network gateway can request information concerning the nature of the scheduled event (e.g., an exam, consultation, surgery, etc.), the time and date of the scheduled event, and the body part pertaining to the scheduled even, among other things" (Columns 18-19, lines 65-67 and 1-2)]** and also discloses **["network gateway 6 is in communication with reviewing stations 7 and imaging modalities 42 via the DICOM network, and is in communication with remote sources, such as the hospital's RIS (*radiology information system*) 44" (Figure 1 and Column 10, lines 12-16) and also explains that "extensions exist which provide connectivity to a hospital's information system (HIS)" (Column 12, lines 52-53)]**.

Cooke does not disclose expressly that the "Digital Image Communication in Medicine (DICOM) modality worklist" is "generated by a hospital information system (HIS) or radiology information system (RIS)."

Bocionek discloses "Digital Image Communication in Medicine (DICOM) modality worklist" is "generated by a hospital information system (HIS) or radiology information system (RIS)" as **["in addition of these *administrative activities*, the RIS often also acts as workflow driver in radiology in order, for example, to send request data in the form of a DICOM worklist entry to a modality such as a CT, MR or X-ray device at which the examination is to take place" (Page 1, Paragraph 0009)]**.

Cooke, Jr. et al. (US 6,574,629) and Bocionek (US 2002/0091765) are analogous art because they are from the same field of endeavor of processing and storage of medical images.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the method of managing storage as described by Cooke and specifically have a RIS or HIS generate a DICOM modality worklist, as described by Bocionek.

The motivation for doing so would have been because Bocionek discloses that it is commonly known in the art to have a RIS act as a workflow driver and "send request data in the form of a DICOM worklist" **[(Page 1, Paragraph 0009)]**.

Therefore, it would have been obvious to combine Bocionek (US 2002/0091765) with Cooke, Jr. et al. (US 6,574,629) for the benefit of creating a memory management method to obtain the invention as specified in claims 1 and 25.

4. As per **claim 2**, the combination of Cooke and Bocionek discloses "the method of claim 1," **[See rejection to claim 1 above]** "wherein examining includes examining a task description of at least one task, said task description included in said worklist" **[With respect to this limitation, Cooke discloses that "worklist select button 184 selects studies that match default worklist criteria" (Figure 12 and Column 42-43). Cooke further teaches, "study list**

contains folders with studies, images and image-related information. Each line in the study list contains information about one study or patient" (Column 26, lines 63-65), that "worklist comprises the study, or group of studies, that the user selects from the main study list" (Column 11, lines 53-54) and that a "worklist section of toolbar" includes "patient and study identifiers" (Column 28, line 65)].

5. As per **claim 3**, the combination of Cooke and Bocionek discloses "the method of claim 1," **[See rejection to claim 1 above]** "wherein examining includes examining information about said at least one modality, said information about said at least one modality included in said worklist" **[With respect to this limitation, Cooke discloses that users may "select to list studies in the main study list based on the imaging modality used to generate images in the studies" (Column 25, lines 45-50)]**.

6. As per **claim 4**, the combination of Cooke and Bocionek discloses "the method of claim 1," **[See rejection to claim 1 above]** "wherein at least one of predetermined rules is tailored to at least one specific information consumer" **[With respect to this limitation, Cooke discloses that "pre-fetching rules may be set/modified by the user via relevant prior rules link 112" and that "initially, the pre-fetching rules are used to determine which prior studies on the PACS should be retrieved" (Figure 5 and Column 19, lines 6-11) as portraying "the user" as an information consumer]**.

7. As per **claim 5**, the combination of Cooke and Bocionek discloses "the method of claim 1," **[See rejection to claim 1 above]** "wherein said ensuring includes: transferring data from the slower access part of the storage to the faster access part of the storage" **[Cooke discloses this limitation as it is explained that "predetermined PACS pre-fetching rules stored in memory**

on the network gateway take over to retrieve relevant prior studies from a memory (e.g., the archives) on the PACS" and that "once this is done, the prior studies are copied into the archive station's cache (or alternatively, the network gateway's cache) and routed to the appropriate stations automatically" (Column 19, lines 4-15) as ensuring fast memory contains data likely to be accessed in the near future. Cooke also teaches that "the network gateway can request information concerning the nature of the scheduled event (e.g., an exam, consultation, surgery, etc.), the time and date of the scheduled event, and the body part pertaining to the scheduled even, among other things" (Columns 18-19, lines 65-67 and 1-2)].

8. As per **claim 6**, the combination of Cooke and Bocionek discloses "the method of claim 1," **[See rejection to claim 1 above]** "wherein said ensuring includes: copying data from the slower access part of the storage to the faster access part of the storage" **[With respect to this limitation, Cooke discloses that "the prior studies are copied into the archive station's cache (or alternatively, the network gateway's cache) and routed to the appropriate stations automatically" (Column 19, lines 4-15) from archive memory; as copying data from a slower memory to a faster memory]**.

9. As per **claim 7**, the combination of Cooke and Bocionek discloses "the method of claim 1," **[See rejection to claim 1 above]** "wherein said ensuring includes ensuring that reference data which is deemed likely to be accessed is available in the faster access part of the storage". **[With respect to this limitation, Cooke discloses that "predetermined PACS pre-fetching rules stored in memory on the network gateway take over to retrieve relevant prior studies from a memory (e.g., the archives) on the PACS" and that "once this is done, the prior**

studies are copied into the archive station's cache (or alternatively, the network gateway's cache) and routed to the appropriate stations automatically" (Column 19, lines 4-15) as ensuring fast memory contains data likely to be accessed in the near future. Cooke also teaches that "the network gateway can request information concerning the nature of the scheduled event (e.g., an exam, consultation, surgery, etc.), the time and date of the scheduled event, and the body part pertaining to the scheduled even, among other things" (Columns 18-19, lines 65-67 and 1-2). Applicant should note "the present invention includes the ability to route relevant prior studies to a reviewing station in contemplation of a scheduled event, such as a patient examination or the like. This process is called pre-fetching, and is effected by code executing on the network gateway" (Column 18, lines 55-67); therefore, providing relevant data which is likely to be accessed by a scheduled event as it is prefetched to prepare for an upcoming event which will access this data].

10. As per **claim 11**, the combination of Cooke and Bocionek discloses "the method of claim 1," **[See rejection to claim 1 above]** "wherein modality is an image acquisition machine" **[Cooke discloses this limitation as the "invention described herein is preferably implemented via a DICOM 3.0 compliant, high-speed, networked computer system designed for digital storage, routing, retrieval, transmission, display and printing of medical images" (Columns 5-6, lines 66-67 and 1-4). Cooke also teaches that "the network gateway is the work-flow manager" and that "the network gateway comprises a workstation that supports at least six, preferably more, simultaneous associations with DICOM-compliant imaging modalities. This modalities include, but are not limited to, X-ray, CT, MRI, NM an US modalities" (Columns 9-10, lines 66-67 and 3-8)].**

11. As per **claims 12 and 27**, Cooke discloses "a method of managing a medical storage," **["The invention described herein can be used to manage folder of studies;" wherein "archive station 4 comprises a workstation 40 having a memory device 41" and memory device comprises "long-term DICOM storage for studies provided from imaging modalities" (Figure 1 and Column 8, lines 39-47)]** "a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps of managing a medical storage," and "a computer program product comprising a computer useable medium having computer readable program code embodied therein of managing a medical storage" **[Cooke discloses these limitations as "workstation 10 includes memory 21, which comprises a computer readable medium such as one or more computer hard disks" and that "PACS software modules comprise computer-executable code that defines process steps for effecting the various PACS functions of each component/extension" (Figures 1,3 and Column 7, lines 42-45 and 54-58)]** "wherein the storage includes a faster access part and a slower access part" **[With respect to this limitation, Cooke discloses that "workstation 10 includes memory 21, which comprises a computer-readable medium such as one or more computer hard disks" as disclosing a slower storage part in memory, and also explains that "a portion of memory 21 may comprise a cache 23 for the workstation" as disclosing a faster storage part in memory (Figure 3 and Column 7, lines 42-46). Cooke also teaches having "an archive station which has access to a long-term memory for storing image data, and a reviewing station which has a display for displaying images based on received image data" (Column 2, lines 21-25)]** "comprising: querying a Digital Image Communications in Medicine (DICOM) modality worklist service and receiving

data related to at least one task which said DICOM modality worklist has scheduled at least one image acquisition machine to perform;" **[Cooke discloses this limitation as "query button 175 enables a user to query for patient images, studies and/or folders on the PACS" (Figures 12, 16 and Column 24, lines 14-15), "thereafter, images, studies, and/or folders which match the search criteria are retrieved and displayed in the study list" (Column 24, lines 31-33) and also teaches that "modality sorting button 194 is configured to select and list studies from CT imaging modalities" (Figure 12 and Column 26, lines 36-37)]** "and ensuring that in the faster access part there is available at least some data which based on at least one predetermined rule is deemed likely to be accessed in connection to said at least one task which said DICOM modality worklist has scheduled said at least one image acquisition machine to perform" **[Cooke discloses this limitation as "predetermined PACS pre-fetching rules stored in memory on the network gateway take over to retrieve relevant prior studies from a memory (e.g., the archives) on the PACS" and that "once this is done, the prior studies are copied into the archive station's cache (or alternatively, the network gateway's cache) and routed to the appropriate stations automatically" (Column 19, lines 4-15) as ensuring fast memory contains data likely to be accessed in the near future. Cooke also teaches that "the network gateway can request information concerning the nature of the scheduled event (e.g., an exam, consultation, surgery, etc.), the time and date of the scheduled event, and the body part pertaining to the scheduled even, among other things" (Columns 18-19, lines 65-67 and 1-2)]**.

Cooke does not disclose expressly that the "Digital Image Communication in Medicine (DICOM) modality worklist" is "generated by a hospital information system (HIS) or radiology information system (RIS)."

Bocionek discloses "Digital Image Communication in Medicine (DICOM) modality worklist" is "generated by a hospital information system (HIS) or radiology information system (RIS)" as **["in addition of these *administrative activities*, the RIS often also acts as workflow driver in radiology in order, for example, to send request data in the form of a DICOM worklist entry to a modality such as a CT, MR or X-ray device at which the examination is to take place" (Page 1, Paragraph 0009)]**.

Cooke, Jr. et al. (US 6,574,629) and Bocionek (US 2002/0091765) are analogous art because they are from the same field of endeavor of processing and storage of medical images.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the method of managing storage as described by Cooke and specifically have a RIS or HIS generate a DICOM modality worklist, as described by Bocionek.

The motivation for doing so would have been because Bocionek discloses that it is commonly known in the art to have a RIS act as a workflow driver and "send request data in the form of a DICOM worklist" **[(Page 1, Paragraph 0009)]**.

Therefore, it would have been obvious to combine Bocionek (US 2002/0091765) with Cooke, Jr. et al. (US 6,574,629) for the benefit of creating a memory management method to obtain the invention as specified in claims 12 and 27.

12. As per **claims 13-14 and 19**, Cooke discloses "a system for storage management," as it is taught that **["The invention described herein can be used to manage folder of studies;" wherein "archive station 4 comprises a workstation 40 having a memory device 41" and that memory device comprises "long-term DICOM storage for studies provided from imaging modalities" (Figure 1 and Column 8, lines 39-47)]** "comprising: at least one modality configured to perform at least one task in accordance with a scheduling by at least one worklist;" **[With respect to this limitation, Cooke discloses that "the network gateway is the work-flow manager" and that it "receives images (as image data) from various non-core components including imaging modalities, confirms the validity of the received images, and routes them appropriately" (Columns 9-10, lines 66-67 and 1-3). Cooke also discloses a memory device comprising "long-term DICOM storage for studies provided from imaging modalities" (Figure 1 and Column 8, lines 39-47)]** "a storage configured to store data, including a faster access part and a slower access part;" **[With respect to this limitation, Cooke discloses that "workstation 10 includes memory 21, which comprises a computer-readable medium such as one or more computer hard disks" as disclosing a slower storage part in memory, and also explains that "a portion of memory 21 may comprise a cache 23 for the workstation" as disclosing a faster storage part in memory (Figure 3 and Column 7, lines 42-46). Cooke also teaches having "an archive station which has access to a long-term memory for storing image data, and a reviewing station which has a display for displaying images based on received image data" (Column 2, lines 21-25)]** "and a prefetcher configured to examine said at least one worklist and configured to ensure that at least some data deemed likely to be accessed in connection to said at least one task is present in said faster access part of said storage" **[Cooke**

discloses this limitation as "predetermined PACS pre-fetching rules stored in memory on the network gateway take over to retrieve relevant prior studies from a memory (e.g., the archives) on the PACS" and that "once this is done, the prior studies are copied into the archive station's cache (or alternatively, the network gateway's cache) and routed to the appropriate stations automatically" (Column 19, lines 4-15) as ensuring fast memory contains data likely to be accessed in the near future. Cooke also teaches that "the network gateway can request information concerning the nature of the scheduled event (e.g., an exam, consultation, surgery, etc.), the time and date of the scheduled event, and the body part pertaining to the scheduled even, among other things" (Columns 18-19, lines 65-67 and 1-2)].

Cooke does not disclose expressly that the "Digital Image Communication in Medicine (DICOM) modality worklist" is "generated by a hospital information system (HIS) or radiology information system (RIS)."

Bocionek discloses "Digital Image Communication in Medicine (DICOM) modality worklist" is "generated by a hospital information system (HIS) or radiology information system (RIS)" as [**"in addition of these *administrative activities*, the RIS often also acts as workflow driver in radiology in order, for example, to send request data in the form of a DICOM worklist entry to a modality such as a CT, MR or X-ray device at which the examination is to take place" (Page 1, Paragraph 0009)**].

Cooke, Jr. et al. (US 6,574,629) and Bocionek (US 2002/0091765) are analogous art because they are from the same field of endeavor of processing and storage of medical images.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the method of managing storage as described by Cooke and specifically have a RIS or HIS generate a DICOM modality worklist, as described by Bocionek.

The motivation for doing so would have been because Bocionek discloses that it is commonly known in the art to have a RIS act as a workflow driver and "send request data in the form of a DICOM worklist" **[(Page 1, Paragraph 0009)]**.

Therefore, it would have been obvious to combine Bocionek (US 2002/0091765) with Cooke, Jr. et al. (US 6,574,629) for the benefit of creating a memory management method to obtain the invention as specified in claims 13-14 and 19.

13. As per **claim 15**, the combination of Cooke and Bocionek discloses "the system of claim 13," **[See rejection to claim 13 above]** "further comprising: at least one information consumer configured to access data stored in said storage" as **["all query, transmit, retrieve, store and print actions initiated by a client" go through the database server (Column 11, lines 6-8) and also discloses that "reviewing stations are workstations that may be used to retrieve and to view medical images handled by the PACS, as well as information relating thereto" (Column 11, lines 28-30)]**.

14. As per **claim 17**, the combination of Cooke and Bocionek discloses "the system of claim 13," **[See rejection to claim 13 above]** wherein "said HIS or RIS and said prefetcher are configured to communicate in accordance with the Digital Image Communications in Medicine (DICOM) standard" as **[With respect to this limitation, Cooke discloses that "memory device 41" comprises "central and secure near and long-term DICOM storage for studies**

provided from imaging modalities" (Column 8, lines 38-41) and that "the scanned images are transmitted to the PACS using DICOM 3.0 protocol" (Column 15, lines 15-16)].

15. As per **claim 21**, Cooke discloses "a system for prefetching," as it is taught that **["the present invention includes the ability to route relevant prior studies to a reviewing station in contemplation of a scheduled event, such as a patient examination or the like" and that "this process is called pre-fetching" (Column 18, lines 55-58)]** "comprising: a worklist examiner configured to examine a worklist and determine at least one type of data likely to be accessed, said at least one type of data being related to a task to be performed by a modality scheduled by said worklist;" **[With respect to this limitation, Cooke discloses that "pre-fetching involves RIS gateway 46 receiving information concerning a scheduled event from RIS 44, and then transmitting that information to the PACS, in particular to network gateway 6. The network gateway then queries the RIS, via the RIS gateway, requesting details concerning the scheduled event" (Figure 1 and Column 18, lines 59-65) as pre-fetching data likely to be needed in the near future. Cooke further discloses that "display button 125 enables a user to display one or more selected studies in the main study list" (Column 20, lines 63-65) and that "the reviewing stations also perform automatic worklist generation and updates as relevant studies arrive" wherein "a user may enter a query asking the PACS to locate a study or group of studies based on input criteria" (Column 11, lines 41-54)]** "a cross referencer configured to compare said at least one type of data with data stored for an entity identified for said task;" **[An equivalent limitation is taught by Cooke as "once the network gateway receives the requested information form the RIS, predetermined PACS pre-fetching rules stored in memory on the network gateway take**

over to retrieve relevant prior studies from memory (e.g., the archive)" (Column 19, lines 3-6) as only those studies pertaining to pre-fetching rules will be retrieved and displayed to a user] "and a retriever configured to transfer or copy data stored for said identified entity which is of at least one of said types and is available only in a slower access part of a storage to a faster access part of said storage" **[This limitation is taught by Cooke as it is taught that "network gateway" copies prior studies "into the archive station's cache (or alternatively, the network gateway's cache)" and these prior studies are then "routed to the appropriate stations automatically" (Column 19, lines 9-15)]**.

Cooke does not disclose expressly that the "Digital Image Communication in Medicine (DICOM) modality worklist" is "generated by a hospital information system (HIS) or radiology information system (RIS)."

Bocionek discloses "Digital Image Communication in Medicine (DICOM) modality worklist" is "generated by a hospital information system (HIS) or radiology information system (RIS)" as **["in addition of these *administrative activities*, the RIS often also acts as workflow driver in radiology in order, for example, to send request data in the form of a DICOM worklist entry to a modality such as a CT, MR or X-ray device at which the examination is to take place" (Page 1, Paragraph 0009)]**.

Cooke, Jr. et al. (US 6,574,629) and Bocionek (US 2002/0091765) are analogous art because they are from the same field of endeavor of processing and storage of medical images.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the method of managing storage as described by Cooke and specifically have a RIS or HIS generate a DICOM modality worklist, as described by Bocionek.

The motivation for doing so would have been because Bocionek discloses that it is commonly known in the art to have a RIS act as a workflow driver and "send request data in the form of a DICOM worklist" **[(Page 1, Paragraph 0009)]**.

Therefore, it would have been obvious to combine Bocionek (US 2002/0091765) with Cooke, Jr. et al. (US 6,574,629) for the benefit of creating a memory management method to obtain the invention as specified in claim 21.

16. As per **claims 22 and 23**, Cooke discloses "the system of claim 21," [See rejection to claim 21 above] "further comprising: a rules storage configured to store at least one rule which allow said worklist examiner to determine said at least one type of data likely to be accessed" as **["pre-fetching rules stored in memory on the network gateway" (Column 19, lines 4-5) and further explains that "the pre-fetching rules may be set and/or modified by the user" (Column 19, lines 23-24) wherein these rules allow "the user to selectively configure pre-fetching of images relating to particular specialties" (Column 19, Table 4; this table also shows all the aspects that may be used to modify pre-fetching rules) and explains "the present invention includes the ability to route relevant prior studies to a reviewing station in contemplation of a scheduled event, such as a patient examination or the like. This process is called pre-fetching, and is effected by code executing on the network gateway" (Column 18, lines 55-67); therefore, providing relevant data which is likely to be accessed by a scheduled event as it is prefetched to prepare for an upcoming event which will access this data]** "further comprising: an internal database configured to save data from said worklist about said at least one task" as **["edited images and the like are stored to database files on the archive station. These database files are preferably stored in a hard disk or the like on**

workstation 40, and comprise a collection of all information relating to studies and parameters" wherein "information stored in the database is demographic information associated with each patient and study" (Columns 8-9, lines 66-67 and 1-4)].

17. As per **claims 28 and 32**, Cooke discloses "A method for getting ready for a task assigned by a Digital Image Communication in Medicine (DICOM modality worklist comprising:" **[With respect to this limitation, Cooke discloses "the invention described herein can be used to manage folder of studies" wherein "long-term DICOM storage for studies provided from imaging modalities" (Column 8, lines 39-47) and explains "the PACS pre-fetches images (and/or summaries of information relating to the images) in response to a scheduled event. In this regard, pre-fetching refers to the process of automatically (i.e., without user intervention) retrieving images (and/or summaries) before the scheduled event" (Column 3, lines 14-19) wherein a "worklist comprises the study, or group of studies, that the user selects from the main study list" (Column 11, lines 53-54); therefore, getting ready for a task/event]**

querying a hospital information system (HIS) or radiology information system (RIS) relating to at least one task which a worklist has scheduled at least one modality to perform; **[Cooke discloses this concept as "the network gateway receives information concerning the scheduled event form the remote source, queries the remote source for details on the scheduled event, receives the details from the remote source, and retrieves images (and/or summaries) form a memory on the PACS based on the details and one or more predetermined pre-fetching rules. By effecting pre-fetching in this manner, the invention further reduces the amount of time required to review images" wherein "the remote**

source" is defined as "a hospital radiology information system, or RIS" (Column 3, lines 19-37)]

"and getting ready for said task" **[With respect to this limitation, Cooke discloses that "because the images and/or summaries have been pre-fetched, they will be ready and waiting for the reviewer (e.g., a physician) at the time of the exam" (Column 3, lines 31-34)]**.

Cooke does not disclose expressly that the "Digital Image Communication in Medicine (DICOM) modality worklist" is "generated by a hospital information system (HIS) or radiology information system (RIS)."

Bocionek discloses "Digital Image Communication in Medicine (DICOM) modality worklist" is "generated by a hospital information system (HIS) or radiology information system (RIS)" as **["in addition of these *administrative activities*, the RIS often also acts as workflow driver in radiology in order, for example, to send request data in the form of a DICOM worklist entry to a modality such as a CT, MR or X-ray device at which the examination is to take place" (Page 1, Paragraph 0009)]**.

Cooke, Jr. et al. (US 6,574,629) and Bocionek (US 2002/0091765) are analogous art because they are from the same field of endeavor of processing and storage of medical images.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the method of managing storage as described by Cooke and specifically have a RIS or HIS generate a DICOM modality worklist, as described by Bocionek.

The motivation for doing so would have been because Bocionek discloses that it is commonly known in the art to have a RIS act as a workflow driver and "send request data in the form of a DICOM worklist" **[(Page 1, Paragraph 0009)]**.

Therefore, it would have been obvious to combine Bocionek (US 2002/0091765) with Cooke, Jr. et al. (US 6,574,629) for the benefit of creating a memory management method to obtain the invention as specified in claims 28 and 32.

18. As per **claim 29**, the combination of Cooke and Bocionek discloses "the method of claim 28," **[See rejection to claim 28 above]** wherein said getting ready for said task, includes: "ensuring that in a faster access part of a medical storage which includes a faster access part and a slower access part" **[disclosing a faster storage part in memory (Figure 3 and Column 7, lines 42-46). Cooke also teaches having "an archive station which has access to a long-term memory for storing image data, and a reviewing station which has a display for displaying images based on received image data" (Column 2, lines 21-25)]** "there is available at least some data which based on at least one predetermined rule is deemed likely to be accessed in connection to said at least one task which said DICOM modality worklist has scheduled said at least one modality to perform" **[With respect to this limitation, Cooke discloses as "the network gateway receives information concerning the scheduled event form the remote source, queries the remote source for details on the scheduled event, receives the details from the remote source, and retrieves images (and/or summaries) form a memory on the PACS based on the details and one or more predetermined pre-fetching rules. By effecting pre-fetching in this manner, the invention further reduces the amount of time required to review images" wherein "the remote source" is defined as "a hospital radiology**

information system, or RIS" and the images are displayed on "a reviewing station" (Column 3, lines 19-37) and explains that "by effecting pre-fetching in this manner, the invention further reduces the amount of time required to review images. That is, because the images and/or summaries have been pre-fetched, they will be ready and waiting for the reviewer (e.g., a physician) at the time of the exam" (Column 3, lines 29-36)].

19. As per **claim 30**, the combination of Cooke and Bocionek discloses "the method of claim 29," **[See rejection to claim 29 above]** wherein "said querying and getting ready are performed by a scheduled modality" **[Cooke discloses this concept as "all query, transmit, retrieve, store and print actions initiated by a client, i.e., a PACS station, go through the database server (either directly or via the network gateway)" (Column 11, lines 6-9). Applicant should note that "modalities" are referred to as "an element which is configured to perform a task assigned by the worklist and can therefore be any combination of software, hardware and/or firmware or alternatively a human that performs the functions as defined" in Applicant's Specification (Paragraph 0047)]**.

20. As per **claim 31**, this claim is rejected for the same reasons as claims 28 and 32 **[See rejection to claims 28 and 32 above]** further requiring:

"means for querying" (***This means is identified in Applicant's Specification as "worklist management service" which may be "modality 420" (Page 15, lines 22-31, Page 18, lines 11-12)***) **[With respect to this limitation, Cooke discloses a corresponding "network gateway" which performs queries (Column 3, lines 14-37)]**

"means for getting ready" (***This means is identified in Applicant's Specification as "prefetcher 460" " (Page 15, lines 22-31, Page 18, lines 11-12)***) **[With respect to this limitation, Cooke**

discloses a corresponding "network gateway" which performs pre-fetching (Column 3, lines 14-37)].

21. **Claims 8-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooke, Jr. et al. (US 6,574,629) in view of Bocionek (US 2002/0091765) as applied to claim 1 above, and further in view of Sechrest et al. (US 6,910,106).

22. As per **claim 8**, the combination of Cooke discloses "the method of claim 1" **[See rejection to claim 1 above]** wherein **["the present invention includes the ability to route relevant prior studies to a reviewing station in contemplation of a scheduled event, such as a patient examination or the like. This process is called pre-fetching, and is effected by code executing on the network gateway" (Column 18, lines 55-67); therefore, providing relevant data which is likely to be accessed by a scheduled event as it is prefetched to prepare for an upcoming event which will access this data]** but fails to disclose expressly that "ensuring includes ensuring that historical data is deemed likely to be accessed."

Sechrest discloses a memory management system wherein "ensuring includes ensuring that historical data is deemed likely to be accessed." Sechrest discloses this limitation as it is taught that **["the present invention is directed towards an improved memory management architecture comprising systems, methods and mechanisms that provide a proactive, resilient and self-tuning memory management system" (Column 2, lines 39-42) by "loading and maintaining in memory data that is likely to be needed, before the data is actually needed" (Column 2, lines 45-46) and further explains that "the present invention comprise various mechanisms directed towards historical memory usage monitoring, memory usage**

analysis, refreshing memory with highly-valued pages, I/O prefetching efficiency, and aggressive disk management" (Column 2, lines 60-65)].

Cooke, Jr. et al. (US 6,574,629), Bocionek (US 2002/0091765) and Sechrest et al. (US 6,910,106) are analogous art because they are from the same field of endeavor of computer memory management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to make the memory management system as disclosed by the combination of Cooke and Bocionek, and further take usage history into consideration when deciding what data is likely to be accessed in the near future, as disclosed by Sechrest.

The motivation for doing so would have been because Sechrest teaches that **["by having the memory filled with appropriate data before those pages are needed, the memory management system substantially reduces or eliminates on-demand disk transfer operations, and thus reduces or eliminates I/O bottlenecks in many significant consumer scenarios" (Column 2, lines 56-60), that "a page's utility can be determined by its I/O transfer expense, along with the historical tracing of its usage" (Column 10, lines 31-33) and also specifies that "the present invention provides advantages via value-based selective or whole memory loading, where value is determined at least in part on pre-observation, whether by tracking its usage history, and/or by training simulation" (Column 16, lines 34-36)]**.

Therefore, it would have been obvious to combine Sechrest et al. (US 6,910,106) with Cooke, Jr. et al. (US 6,574,629) and Bocionek (US 2002/0091765) for the benefit of creating a memory management system to obtain the invention as specified in claim 8.

23. As per **claims 9 and 10**, the combination of Cooke and Sechrest discloses a method as specified in claims 1, 7, and 8 **[See rejection to claims 1, 7, and 8 above]**. Cooke further discloses having "data about a specific object on which said task is to be performed" wherein "said object is a body part of a patient" as it is explained that **["the present invention includes the ability to route relevant prior studies to a reviewing station in contemplation of a scheduled event, such as a patient examination or the like" (Column 18, lines 55-57) and it is further disclosed that "the network gateway can request information concerning the nature of the scheduled event (e.g., an exam, consultation, surgery, etc.), the time and date of the scheduled event, and the body part pertaining to the scheduled event, among other things" (Columns 18-19, lines 65-67 and 1-2)]**.

II. ACKNOWLEDGMENT OF ISSUES RAISED BY THE APPLICANT

Response to Amendment

24. Applicant's arguments with respect to a DICOM worklist being generated by a HIS or RIS, filed May 1, 2006 have been fully considered but are moot in view of new ground(s) of rejection.

a. ARGUMENTS CONCERNING FORMAL MATTERS

25. The applicant's traversal of the formal requirements requested by the examiner are addressed in the following section as required by **M.P.E.P. § 707.07(f)**.

III. ARGUMENTS CONCERNING PRIOR ART REJECTIONS

1st POINT OF ARGUMENT:

26. Applicant's remark that a DICOM worklist being generated by a HIS or RIS, have been fully considered but are moot in new ground(s) of rejection. However, Examiner directs Applicant's attention to Applicant's Specification (Paragraph 0047) which defines "worklist generator" as "any combination of software, hardware and/or firmware, or alternatively a human that performs the function as defined."

2ND POINT OF ARGUMENT:

27. Regarding the applicant's remark that Cooke does not disclose "ensuring that data deemed likely to be accessed in available in a faster access part" and that in Cooke, it is the relevant worklists which are pre-fetched. It is the examiner's position that Cooke discloses "ensuring that data deemed likely to be accessed in available in a faster access part" as **["the present invention includes the ability to route relevant prior studies to a reviewing station in contemplation of a scheduled event, such as a patient examination or the like. This process is called pre-fetching, and is effected by code executing on the network gateway" (Column 18, lines 55-67); therefore, providing relevant data which is likely to be accessed by a scheduled event as it is pre-fetched to prepare for an upcoming event which will access this data]**.

28. All arguments by the applicant are believed to be covered in the body of the office action or in the above remarks and thus, this action constitutes a complete response to the issues raised in the remarks dated May 1, 2006.

IV. CITATION OF RELEVANT ART

29. The references to Cooke, Jr. et al. (US 6,574,629) and Sechrest et al. (US 6,910,106) were not correctly cited in the last Office action. The correct citation is shown on the attached PTO-892.

V. CLOSING COMMENTS

Conclusion

30. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

31. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

VI. STATUS OF CLAIMS IN THE APPLICATION

32. The following is a summary of the treatment and status of all claims in the application as recommended by **M.P.E.P. § 707.07(i)**:

a(1) CLAIMS NO LONGER IN THE APPLICATION

33. Claims 16, 18, 20, 24 and 26 were cancelled by the amendment dated February 13, 2006.

a(2) CLAIMS REJECTED IN THE APPLICATION

34. Per the instant office action, claims **1-15, 17, 19, 21-23, 25 and 27-32** have received a second action on the merits and are subject of a final rejection.

35. For at least the above reasons it is the examiner's position that the applicant's claims are not in condition for allowance.

b. DIRECTION OF FUTURE CORRESPONDENCES

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yaima Campos whose telephone number is (571) 272-1232 and email address is Yaima.Campos@uspto.gov. The examiner can normally be reached on Monday to Friday 8:30 AM to 5:00 PM.

IMPORTANT NOTE

37. If attempts to reach the above noted Examiner by telephone or email are unsuccessful, the Examiner's supervisor, Mr. Donald Sparks, can be reached at the following telephone number: Area Code (571) 272-4201.

38. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

July 18, 2006

Yaima Campos
Examiner
Art Unit 2185

DONALD SPARKS
SUPERVISORY PATENT EXAMINER